CLAIMS

1. A method for filtering liquid utilizing a proportioning, regenerative rotary pump configuration, comprising:

introducing feed liquid into a pump;

pressurizing the feed liquid in the pump;

feeding the pressurized liquid from the pump to a reverse osmosis filter;

dividing the liquid in the filter into product liquid and waste liquid;

feeding the waste liquid to a motor to drive the motor; and

mechanically coupling the motor to the pump to recover energy from the waste liquid and establish a ratio of feed liquid to product liquid.

2. A liquid filtration system, comprising:

a pump configured to receive feed water and to pressurize the feed water at an outlet therefrom;

a filter coupled to the outlet of the pump and configured to receive the pressurized feed water and to divide the pressurized feed water into waste water and purified product water;

a motor having an input coupled to the filter to receive the waste water and configured to be driven by the waste water; and

a mechanical coupling configured to couple the output of the motor to an input of the pump to recover a portion of the energy used to pressurize the feed water and to establish a ratio of the feed water to the product water.